DEB P JAISI

Associate Professor

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A. ACADEMIC PREPARATION

2018-2019	NSF EPSCoR Fellow, California Institute of Technology, Pasadena, CA
2007-2010	Postdoctoral Associate, Geology and Geophysics and Chemical and Environmental Engineering, Yale University, New Haven, CT
2003-2007	Doctor of Philosophy in Geology, Miami University, Oxford, OH
2001-2003	Master of Sciences in Engineering and Applied Geology, Asian Institute of Technology, Bangkok, Thailand
1995-1998	Master of Science in Geology, Tribhuvan University, Kathmandu, Nepal
1992-1994	Bachelor of Science, Tribhuvan University, Kathmandu, Nepal

B. PROFESSIONAL APPOINTMENTS

2017-date	**Associate Professor** Department of Plant and Soil Sciences, University of Delaware, Newark, DE Joint appointment with Department of Plant and Soil Sciences, Department of Geological Sciences, University of Delaware, Newark, DE
2007-2010	Interdepartmental Bateman Postdoctoral Fellow Departments of Geology and Geophysics and Chemical and Environmental Engineering, Yale University, New Haven, CT
2003-2007	Teaching/Research Assistant Department of Geology, Miami University, Oxford, OH
2003-2003	Research Associate Department of Geotechnical and Geo-environmental Engineering, Asian Institute of Technology, Bangkok, Thailand
1999-2001	Lecturer Department of Geology, Tribhuvan University, Kathmandu, Nepal

C. PROFESSIONAL SOCIETY MEMBERSHIPS

- American Geophysical Union (AGU)
- American Chemical Society (ACS)
- Clay Minerals Society (CMS)
- Geological Society of America (GSA)
- Soil Science Society of America (SSSA)
- American Society of Nepalese Engineers (ASNEngr)

D. PROFESSIONAL AND SCHOLARLY HONORS

- National Science Foundation Early CAREER Award, 2017
- National Science Foundation EPSCoR Fellowship, 2017
- Senior Visiting Faculty Fellow, Xiamen University, 2017

- Nominated for Thousand Global Experts (by Xiamen University for the Chinese Government) 2017
- Nominated for Excellence in Undergraduate Academic Advising and Mentoring Award, University of Delaware, 2015, 2016
- New Investigator Award, American Chemical Society (ACS), 2013
- Ralph Powe Junior Faculty Enhancement Award, Oak Ridge Associated Universities (ORAU), 2012
- First Runner-Up Award in the Journal of Environmental Science & Technology, 2008
- Interdepartmental Bateman Postdoctoral Fellowship, Yale University, 2007
- GDL Foundation Fellowship, 2007
- First Geology Doctoral Award (outstanding doctoral degree), Miami University, 2007
- Graduate School Achievement Award, Miami University, 2005, 2006, 2007
- Robert C. Reynolds, Jr. Research Award, Clay Minerals Society, 2006
- Deeswasmongkul Prize (outstanding performance in Masters' degree at AIT), 2003
- Asian Development Bank Scholarship (full scholarship for Masters' degree at AIT), 2001
- Mahendra Vidhya Bhusan (Gold Medal, *Conferred by His Majesty the King of Nepal*), 1999
- Outstanding Student Scholarship, Nepal Academy of Science and Technology, 1997

E. PROFESSIONAL DEVELOPMENT COURSES/TRAININGS

- Faculty Success Program, University of Delaware, Newark, DE (Sept−Dec, 2015)
- Becoming an EPSCoR Champion, University of Delaware, Newark, DE (Jul 27−28, 2015)
- Summer Faculty Institute, University of Delaware, Newark, DE (Jun 1−4, 2015)
- Strategic Communication Online Learning, NSF EPSCoR (Jun 22, 2014)
- Science: Becoming the Messenger NSF, University of Delaware, Newark, DE (Jul 22−23, 2013)

F. RESEARCH PUBLICATIONS

(Google citations: 2501; h-index: 23; i10-index: 31)

†† *Undergraduate student,* † *graduate student,* * *postdoctoral associate,* @ *Jaisi as the corresponding author*

i) Peer-reviewed journal publications

1. Li, H.†, Wallace, A., Sun, M.*, Reardon, P., and **Jaisi, D.P.**@ (2018). Degradation of glyphosate by Mn–oxide may bypass sarcosine and form glycine directly after C–N bond cleavage. *Environmental Science & Technology*, 52, 1109–1117.
2. Bi, Q.-F., Zheng, B.-X., Lin, X.-Y., Lia, K.-J., Liu, X.-P., Hao, X.-L., Zhang, H., Zhang, Z.-B**., Jaisi, D.P.**, and Zhu, Y.-G. (2018). Microbial cycling of phosphorus on long-term fertilized soil: Insights from phosphate oxygen isotope ratios. *Chemical Geology*, 483, 56–64.
3. Arfania, H.†, Samadi, A., Asadzadeh, F., Sepehr, E. and **Jaisi, D.P.**@ (2018). Distribution of phosphorus pools in selected western river sediments of the Urmia Lake Basin, Iran. *Environmental Science and Pollution Research*, 84, 1–12.
4. Jiang, J.-H., Zhang, H., **Jaisi, D.P.**, Blake, R.E., Zheng, A.-R., Chen, M., Zhang, X.-G., Peng, A.-G., Lei, X.-T., Kang, K.-Q., Chen, Z.-G. (2017). The effect of sample treatment on the oxygen isotopic composition of phosphate pools in soils. *Chemical Geology*, 474, 9–16.

5. **Jaisi, D.P.** [@]**,** Hou, Y., Stout, L.M.*, Massoudieh, A. Modeling of biotic and abiotic processes affecting phosphate oxygen isotope ratios at the mineral-water-biota interface. *Water Research,* 126, 262–273.
6. George, T.S., Giles, C., Blackburn, D., Condron, L., **Jaisi, D.P** and others. Organic phosphorus in the terrestrial environment: A perspective on the state of the art and future priorities. *Plant and Soil*, 1–18.
7. Oliveira, F.R., Patel, A.K., **Jaisi, D.P.,** Adhikari, S., and Khanal, S.K. Environmental and agricultural applications of biochar: A review. *Bioresource Technology,* 246, 110–122.
8. Li, J.*, Reardon, P., McKinley, J.P., Joshi, S.R.[†], Bai, Y.[†], Bear, K.[†], and **Jaisi, D.P.**[@] (2017) Water column particulate matter: A key contributor to phosphorus regeneration in a coastal eutrophic environment, the Chesapeake Bay. *Journal of Geophysical Research – Biogeosciences*, 122 (DOI:10.1002/2016JG003572).
9. Wu, S., Fang, G., Wang, Y. Zheng, Y., Wang, C., Zhao, F., **Jaisi, D.P.,** Zhou, D. (2017). Redox-active oxygen-containing functional groups in activated carbon facilitate microbial reduction of ferrihydrite. *Environmental Science & Technology*, 51, 9709–9717.
10. Li, J.*, Bai, Y.[†], Bear, K.[†], Joshi, S.R.[†], and **Jaisi, D.P.**[@] (2017). Phosphorus availability and turnover in the Chesapeake Bay: Insights from nutrient stoichiometry and phosphate oxygen isotope ratios. *Journal of Geophysical Research – Biogeosciences*, 122, (DOI:10.1002/2016JG003589).
11. Kanjanarong, J., Giri, B.S., **Jaisi, D.P.,** Oliveira, F.R., Boonsawang, P., Chaiprapat, S., Singh, R.S., Balakrishna, A.*, Khanal, S.K. Removal of hydrogen sulfide generated during anaerobic treatment of sulfate-laden wastewater using biochar: Evaluation of efficiency and mechanisms. *Bioresource Technology*, 235, 115–121.
12. Sun, M.*, Alikhani, J., Massoudieh, A., Greiner, R., and **Jaisi, D.P.**[@] (2017). Phytate degradation by different phosphohydrolase enzymes: Contrasting kinetics, decay rates, pathways, and isotope effects. *Soil Science Society of America Journal*, 81, 61–75.
13. **Jaisi, D.P.**[@], Li, H.[†], Wallace, A., Paudel, P.[††], Balakrishna, A.* and Lerch. R. (2016). Mechanisms of bond cleavage during mineral- and UV-catalyzed degradation of glyphosate: Results from phosphate oxygen isotopes and molecular simulations. *Journal of Agricultural and Food Chemistry*, 64, 8474–8482.
14. Joshi, S.R.[†], Li, X.N.* and **Jaisi, D.P.**[@] (2016). Transformation of phosphorus pools in an agricultural soil: An application of ^{18}O labeling of phosphate. *Soil Science Society of America Journal* 80, 69–78.
15. Blake, R.E., Surkov, A.V., Stout, L.M.*, Li, H., Chang, S.J., **Jaisi, D.P.**, Colman, A.S. and Liang, Y. (2016). DNA thermometry: A universal biothermometer in the $^{18}O/^{16}O$ ratio of PO_4 in DNA. *American Journal of Science,* 316, 813–838.
16. Feng, X., Yan, Y., Wan, B., Li, W., **Jaisi, D.P.**, Zheng, L., Zhang, J., and Liu, F. (2016). Enhanced dissolution and transformation of ZnO nanoparticles: The role of inositol hexakisphosphate. *Environmental Science & Technology,* 50, 5651–5660.
17. Wang, D.*, Xie, Y., **Jaisi, D.P.**[@] and Jin, Y. (2016). Effects of low-molecular-weight organic acids on the dissolution of hydroxyapatite nanoparticles in batch and column systems. *Environmental Science: Nano*, DOI: 10.1039/c6en00085a.
18. Li, H.[†], Joshi, S.R.[†] and **Jaisi, D.P.**[@] (2016). Degradation and isotope source tracking of glyphosate and aminomethylphosphonic acid (AMPA). *Journal of Agricultural and Food Chemistry*, 64, 529–538.
19. Stout, L.M.*, Nguyen, T.T.[††] and **Jaisi, D.P.**[@] (2016). Relationship of phytate, phytate mineralizing bacteria, and *beta*-propeller genes along a coastal tributary to the Chesapeake Bay. *Soil Science Society of America Journal* 80, 84–96.
20. Wu, J.[†], Paudel, P. [††], Joshi, S.R.[†], Stout, L.*, Greiner, R. and **Jaisi, D.P.**[@] (2015). Mechanisms and pathways of phytate degradation: Evidence from oxygen isotope ratios

of phosphate, HPLC, and phosphorus-31 NMR spectroscopy. S*oil Science Society of America Journal* 79, 1615–1628.
21. Schellenger, A.P., Onnis-Hayden, A., **Jaisi, D.P.** and Larese-Casanova, P. (2015). Oxygen kinetic isotope effects in selenate during microbial reduction. *Applied Geochemistry* 63, 261–271.
22. Li, H.[†] and **Jaisi, D.P.**[@] (2015). An isotope labeling approach to investigate atom exchange during phosphate sorption and desorption. *Soil Science Society of America Journal*, 79, 1340–1351.
23. Wang, D.[*], Jin, Y. and **Jaisi, D.P.**[@] (2015). Cotransport of hydroxyapatite nanoparticles and hematite colloids in saturated porous media: Mechanistic insights from mathematical modeling and phosphate oxygen isotope fractionation. *Journal of Contaminant Hydrology*, 182, 194–209.
24. Wang, D.[*], Jin, Y. and Jaisi, D.[@] (2015). Effect of size selective retention on the co-transport of hydroxyapatite and goethite nanoparticles in saturated porous media. *Environmental Science & Technology,* 49, 8461–8470.
25. Upreti, K.[†], Joshi, S.R.[†], McGrath, J. and **Jaisi, D.P.**[@] (2015). Factors controlling phosphorus mobilization from a coastal estuary in the Chesapeake Bay. *Soil Science Society of America Journal,* 79, 815–825.
26. Ladin, Z.S., D'Amico, V., **Jaisi, D.P.** and Shriver, W.G. (2015). Does brood parasitism affect host nestling diet and nutrition? *The Auk: Ornithological Advances*, 132, 717–734.
27. Paudel, P.[††], Negusse, N.[††] and **Jaisi, D.P**.[@] (2015). Birnessite catalyzed degradation of glyphosate: A mechanistic study aided by kinetics batch studies and NMR spectroscopy. *Soil Science Society of America Journal,* 79, 826–837.
28. Wang, D.[*], **Jaisi, D.P**., Yan J., Jin, Y. and Zhou, D. (2015). Transport and retention of polyvinylpyrrolidone-coated silver nanoparticles in natural soils. *Vadose Zone Journal,* DOI: 10.2136/v15.01.007.
29. Joshi, S.R.[†], Kukkadapu, R., Burdige, D., Bowden, M., Sparks, D.L. and **Jaisi, D.P.**[@] (2015). Organic matter remineralization predominates phosphorus cycling in the mid-Bay sediments in the Chesapeake Bay. *Environmental Science & Technology,* 49, 5887–5896 ***[highlighted in the journal cover page]***.
30. Li, W.[*], Joshi, S.R.[†], Hou, G., Burdige, D., Sparks, D.L. and **Jaisi, D.P.**[@] (2015). Characterizing the phosphorus speciation in Chesapeake Bay sediments using ^{31}P NMR and X-Ray absorption fine spectroscopy. *Environmental Science & Technology*, 49, 203–211.
31. Wang, D.[*], Ge, L., He, J., Zhang, W., **Jaisi, D.** and Zhou, D. (2014). Hyperexponential and nonmonotonic retention of polyvinylpyrrolidone-coated silver nanoparticles in an ultisol. *Journal of Contaminant Hydrology*, 164, 35–48.
32. Stout, L.M.[*], Joshi, S.R.[†], Kana, T. and **Jaisi, D.P.**[@] (2014). Microbial activities and phosphorus cycling: An application of oxygen isotope ratios in phosphate. *Geochimica et Cosmochimica Acta*, 138, 101–116.
33. **Jaisi, D.P.**[@] (2013). Stable isotope fractionations during reactive transport of phosphate in packed-bed sediment columns. *Journal of Contaminant Hydrology*, 154, 10–19.
34. Rodrigues, D.F., **Jaisi, D.P**. and Elimelech, M. (2013). Toxicity of functionalized single-walled carbon nanotubes on soil microbial communities: Implications for nutrient cycling in soil. *Environmental Science & Technology*, 47, 625–633.
35. **Jaisi, D.P**.[@], Kukkadapu, R.K., Stout, L.M., Varga, T. and Blake, R.E. (2011). Biotic and abiotic pathways of phosphorus cycling in minerals and sediments: Insights from oxygen isotope ratios in phosphate. *Environmental Science & Technology*, 45, 6254–6261.
36. **Jaisi, D.P**.[@], Eberl, D.D., Kim, J.-W. and Dong, H. (2011). The formation of illite from nontronite by mesophilic and thermophilic bacterial reaction. *Clays and Clay Minerals,* 59, 21–33 ***[highlighted in the journal cover page]***.

37. **Jaisi, D.P**.[@] and Blake, R.E. (2010). Tracing sources and cycling of phosphorus in Peru Margin sediments using oxygen isotopes in authigenic and detrital phosphates. *Geochimica et Cosmochimica Acta,* 74, 3191–3212.
38. **Jaisi, D.P**.[@], Blake, R.E. and Kukkadapu, R. (2010). Fractionation of oxygen isotopes in phosphate during its sorption/desorption to iron oxides. *Geochimica et Cosmochima Acta,* 74, 1309–1319.
39. Bishop, M.E., **Jaisi, D.P**., Dong, H., Kukkadapu, R.K. and Ji, J.F. (2010). Bioavailability of Fe(III) in loess sediments: An important source of electron acceptor. *Clays and Clay Minerals* 58, 542–557.
40. **Jaisi, D.P**. and Elimelech, M. (2009). Single-walled carbon nanotubes exhibit limited transport in soil columns. *Environmental Science & Technology,* 43, 9161–9166.
41. **Jaisi, D.P**.[@], Dong, H., Plymale, A.E., Frederickson, J.K., Zachara, J.M., Heald, S.E. and Liu, C. (2009). Reduction and long-term immobilization of technetium by Fe(II) associated with clay mineral nontronite. *Chemical Geology* 264, 127–138.
42. **Jaisi, D.P.**, Saleh, N., Blake, R.E. and Elimelech, M. (2008). Transport of single-walled carbon nanotubes in porous media: Filtration mechanisms and reversibility. *Environmental Science & Technology,* 42, 8317–8323.
43. **Jaisi, D.P**., Liu, C., Dong, H., Blake, R.E. and Fein, J. (2008). Fe^{2+} sorption onto NAu-2. *Geochimica et Cosmochimica Acta,*72, 5361–5371.
44. **Jaisi, D.P**., Ji, S., Dong, H, Eberl, D., Blake, R. and Kim, J-W. (2008). Role of microbial Fe(III) reduction and solution chemistry in aggregation and settling of suspended particles in the Mississippi River delta plain, Louisiana, USA. *Clays and Clay Minerals,* 56, 416–428.
45. **Jaisi, D.P.**[@], Dhital, M.R. and Panthee, S. (2008). Geology of the Kusma-Behadi fold belt area, Lesser Himalaya, central West Nepal. *Himalayan Geology,* 29, 118–125.
46. **Jaisi, D.P.**, Dong, H. and Morton, J.P (2008). Partitioning of Fe(II) in reduced nontronite (NAu-2) to reactive sites: Reactivity in terms of Tc(VII) reduction. *Clays and Clay Minerals* 56, 175–189.
47. **Jaisi, D.P**., Dong, H. and Liu, C. (2007). Kinetic analysis of microbial reduction of Fe(III) in nontronite. *Environmental Science & Technology,* 41, 2434–2444.
48. **Jaisi, D.P**., Dong, H., and Liu, C. (2007). Influence of biogenic Fe(II) on the extent of microbial reduction of Fe(III) in clay minerals nontronite, illite, and chlorite. *Geochimica et Cosmochimica Act,* 71, 1145−1158.
49. **Jaisi, D.P**., Dong, H., Kim, J.W., He, Z. and Morton, J. (2007). Nontronite particle aggregation induced by microbial Fe(III) reduction and exopolysaccharide production. *Clays and Clay Minerals,* 55, 98–109.
50. **Jaisi, D.P.**, Kukkadapu, R.K., Eberl, D.D. and Dong, H. (2005). Control of Fe(III) site occupancy on the extent and rate of microbial Fe(III) reduction in nontronite. *Geochimica et Cosmochimica Acta,* 69, 5429−5440.
51. **Jaisi, D.P.**, Glawe, U., and Bergado, D.T. (2005). Hydraulic behavior of geosynthetic and granular landfill drainage materials in the Sa Kaeo Landfill, Thailand. *Geotextiles & Geomembranes,* 23, 185–204.

ii) Peer-reviewed review papers

52. **Jaisi, D.P.**[@] and Blake, R.E. (2014). Advances in using oxygen isotope ratios of phosphate to understand phosphorus cycling in the environment. *Advances in Agronomy,* 125, 1–54.
53. Petosa, A.R., **Jaisi, D.P.,** Quevedo, I.R., Elimelech, M. and Tufenkji, N. (2010). Aggregation and deposition of engineered nanomaterials in aquatic environments: Role of physicochemical interactions. *Environmental Science & Technology,* 44, 6532–6549.

54. Dong, H., **Jaisi, D.P.**, Kim, J-W. and Zhang, G. (2009). Microbe-clay mineral interactions. *The American Mineralogist,* 94, 1505–1519.

iii) Peer-reviewed book chapter

55. **Jaisi, D.P.**[@], Liang, Y. and Blake, R.E. (2014). Exploration of compound-specific organic-inorganic phosphorus transformation using stable isotopes. In *Phosphate Manure and Nutrient Chemistry for Sustainable Agriculture and Environment* (Zhongqi He and Hailin Zhang, editors), pp 267–292.

G. INVITED TALKS IN UNIVERSITIES, CONFERENCES, & MEETINGS (2011-2018)

i) Invited/keynote presentations in professional society meetings and conferences

1. **Jaisi, D.P.** Sun, M., Joshi, S.R., Stout, L.M., and Bear, K. Linking sources and transformation of phosphorus at the soil-water continuum in a costal estuarine environment. *256th ACS National Meeting and Exposition.* New Orleans, LA (Mar 18-22, 2018).
2. Sun, M., Wu, J., and **Jaisi, D.P.** Mechanisms and pathways of phytate degradation by different enzymes: Application of NMR, HPLC, and stable isotope methods to track products, pathways, and isotope effects. *252th ACS National Meeting and Exposition.* Philadelphia, (Aug 21–25, 2016). *Paper selected for Sci-Mix, a meeting-wide event.*
3. Blake, R.E., Surkov, A.V., Stout, L.M., Li, H., **Jaisi, D.P.** and Chang, S.J. DNA thermometry and $^{18}O_P$ of P_{org} source materials: New tools in the study of biogeochemical cycling and transport of phosphorus. *Geological Society of America Annual Meeting.* Baltimore MD (Nov 1–4, 2015).
4. **Jaisi, D.P.** Unexpected pathway of phosphorus cycling in the Chesapeake Bay: Potential impacts and opportunities. *Joint Annual meeting of ASNEngr and CAN-USA.* New Brunswick, NJ (Aug 29–30, 2015).
5. **Jaisi, D.P**., Li, H., Paudel, P. and Wallace, A.F. Mechanism of degradation and degradation pathways of glyphosate. *Goldschmidt 2015 Meeting.* Prague, Czech Republic (Aug 16–21, 2015).
6. **Jaisi, D.P.** Application of stable isotopes to study phosphorus biogeochemistry. *245th ACS National Meeting and Exposition.* New Orleans, Louisiana (Apr 7–11, 2013).
7. **Jaisi, D.P.** Phosphorus source and cycling in marine and terrestrial environments. *ISOPHOS12: Development of Isotopic Tracers for a Better Understanding of Phosphorus Cycle*. Ascona, Switzerland (Jun 24–29, 2012).

ii) Invited presentations in departmental seminars in the U.S. universities and other significant organizations

8. **Jaisi, D.P.** *Transformation, cycling, and loss of phosphorus from agricultural soils: Results from ^{18}O labeling and natural abundance isotope studies*" in the Department of Biosystem Engineering, Auburn University, Auburn, AL (Mar 23, 2017)
9. **Jaisi, D.P.** *Source tracking of phosphorus in a coastal estuary to the Chesapeake Bay.* Department of Natural Resource and Environmental Control (DNREC) Dover, DE (Dec 15, 2016).
10. **Jaisi, D.P.** Isotope effect of nutrient cycling in nutrient-enriched ecosystem. *Department of Biological and Environmental Engineering, Cornell University.* Ithaca, NY (Nov 23, 2015).
11. **Jaisi, D.P.** Application of stable isotopes for sources and cycling of phosphorus in the Chesapeake Bay. *Department of Plant and Soil Sciences, University of Vermont*. Burlington, VT (Feb 6, 2015).

12. **Jaisi, D.P.** Scaling-up of molecular reactions to ecosystem processes: Sources and cycling of phosphorus in the Chesapeake Bay. *Department of Environmental Sciences, Rutgers University.* Newark, NJ (Sep 22, 2014).
13. **Jaisi, D.P.** Hypoxia and eutrophication in the Chesapeake Bay. *Department of Plant and Soil Sciences, University of Delaware*, Newark, DE (Sep 26, 2014).
14. **Jaisi, D.P.** Organic matter remineralization is the predominant pathway of phosphorus cycling in the Chesapeake Bay. *Department of Geological Sciences, University of Delaware*. Newark, DE (Oct 16, 2014).
15. **Jaisi, D.P.** Chesapeake Bay phosphorus sources and cycling (*Invited by the Secretary, Hon. Ed Kee, Delaware Department of Agriculture*). DE State Nutrient Commission. Dover, DE (May 6, 2014).
16. **Jaisi, D.P.** Sources and biogeochemical cycling of phosphorus in the Chesapeake Bay watershed. *Department of Soil, Water, and Climate; University of Minnesota.* Minneapolis, MN (Jan 29, 2014).
17. **Jaisi, D.P.** Phosphorus cycling in marine environments: Insights from oxygen isotope ratios in phosphate. *Department of Marine Sciences, University of Delaware*. Lewes, DE (Nov 15, 2011).
18. **Jaisi, D.P.** Phosphorus cycling in the Cape Cod aquifer: Insights from oxygen isotope ratios in phosphate. *Department of Geological Sciences, University of Delaware*. Newark, DE (Nov 8, 2011).

iii) Invited presentations outside U.S. (universities, research institutions, and government organizations)

19. Jaisi, D.P. Linking sources and transformation of phosphorus in the soil-water continuum: A case study of the Chesapeake Bay watershed. College of Natural Resources and Environment, Huazhong Agricultural University, China (Dec 18, 2017). (INVITED).
20. Jaisi, D.P., Sun, M.*, and Wu, J.†. Phytate degradation: An enigmatic source of phosphorus for downstream water quality. College of Natural Resources and Environment, Huazhong Agricultural University, China (Dec 20, 2017) (INVITED).
21. **Jaisi, D.P.** Transformation of phosphorus in water and sediment in coastal environment. The 29th Xiangshan Forum: Biogeochemistry of Coastal Wetland Ecosystems, Xiamen University, China (June 21, 2017)
22. **Jaisi, D.P**. Impact of agricultural runoff of phosphorus in downstream water quality: A case in the Chesapeake Bay, USA. Third International Conference on Water Resources and Environment (WRE2017) at Qingdao, China (June 28, 2017).
23. **Jaisi, D.P**. Transformation, cycling, and loss of phosphorus from agricultural soils: Results from ^{18}O labeling and natural abundance isotope studies. *College of Resource and Environment, Huazhong Agricultural University.* Wuhan, China (Jul 11, 2016).
24. **Jaisi, D.P.** Impact of agricultural runoff on the fate and pathway of phosphorus cycling in a coastal estuary. *Nanjing Institute of Geography and Limnology (NIGLAS), Chinese Academy of Sciences (CAS).* Nanjing, China (Jul 9, 2016).
25. **Jaisi, D.P.** Sources and pathways of phosphorus cycling in the Chesapeake Bay: Results from isotopes, EXAFS, NMR, and Mossbauer analyses. *Institute of Soil Sciences (ISSCAS), Chinese Academy of Sciences (CAS).* Nanjing, China (Jul 8, 2016).
26. **Jaisi, D.P.** O-18 stable isotope geochemistry: A means of differentiating biologically mediated and abiotic reactions in extant and extinct environments. *Department of Earth Sciences, Nanjing University.* Nanjing, China (Jul 7, 2016).
27. **Jaisi, D.P.** New pathway of phosphorus cycling in the Chesapeake Bay: Evidence from phosphate isotope ratios. *Department of Marine Sciences, Xiamen University.* Xiamen, China (Jul 6, 2016).

28. **Jaisi, D.P.** Phosphate oxygen isotopes: A tracer for phosphorus cycling in agricultural soils. *Institute of Urban Environment (IUE), Chinese Academy of Sciences (CAS).* Xiamen, China (Jul 4, 2016).
29. **Jaisi, D.P.** Phosphorus: A non-renewable resource and a pollutant. *Department of Mines and Geology, Government of Nepal*. Kathmandu, Nepal (Jul 3, 2014).
30. **Jaisi, D.P.** Degradation of organic phosphorus compounds: An isotope approach. *Department of Geology, Tribhuvan University.* Kathmandu, Nepal (Jun 27, 2014).
31. **Jaisi, D.P.** Sources and biogeochemical cycling of phosphorus in the Chesapeake Bay. *College of Resource and Environment, Huazhong Agricultural University.* Wuhan, China (Jun 19, 2014).
32. **Jaisi, D.P.** Application of stable isotopes to study phosphorus cycling in different environments. *Department of Earth System Sciences, Yonsei University.* South Korea (Jun 17, 2014).

H. MAJOR MEDIA NEWS HIGHLIGHTING RESEARCH

1. Science Diffusion News: In search of new phosphorus cycling paradigm. http://www.scientia.global/issues/
2. National Science Foundation (NSF) research fellowship award. https://www.nsf.gov/news/news_summ.jsp?cntn_id=243157
3. UD Research Office: UDaily News (Sept, 2017): UD's Jaisi receives research Fellowship. http://www.udel.edu/udaily/2017/september/jaisi-epscor-fellowship/
4. UD Research Office: UDaily News (Jan, 2017): Jaisi wins NSF CAREER award for research on sources and fate of phytate. http://www.udel.edu/udaily/2017/january/jaisi-nsf-career-award/
5. UD Research Office: UDaily News (Mar, 2016): *Degradation and source tracking of glyphosate.*http://www1.udel.edu/udaily/2016/mar/herbicide-break-down-track-032116.html
6. Crop Science News Magazine (Mar, 2016): *Does phytate loading stimulate phytate-mineralizing bacteria?* https://dl.sciencesocieties.org/publications/csa/articles/61/3/12
7. UD Research Office, UDaily News (Sep 2016): Phosphorus fertilizer: UD researchers identify behaviors of nanoparticle that shows promise as nanofertilizer. http://www.udel.edu/udaily/2016/sep/nanoparticle-fertilizer-090215.html
8. Crop Science News Magazine (Jul 2015): *Mobilization of phosphorus from creek sediments*. https://dl.sciencesocieties.org/publications/csa/articles/60/7/12
9. Pacific Northwest National Laboratory (PNL): *Coastal Contamination: Phosphorus recycling in estuary dead zone*. http://www.emsl.pnnl.gov/emslweb/news/coastal-contamination
10. Environmental Science & Technology, journal cover page (May, 2015): *New pathway of phosphorus cycling in the Chesapeake Bay*. http://pubs.acs.org/toc/esthag/49/10
11. UD Research Office, UDaily News (Feb, 2015). Remineralization: UD-led study suggests new pathway for phosphorous cycling in Chesapeake Bay. http://www.udel.edu/udaily/2015/feb/phosphorous-cycling-021915.html
12. American Farms newspaper (Mar, 2015). Research suggests Bay creates its own phosphorous http://www.americanfarm.com/publications/the-delmarva-farmer/events/2181-research-suggests-bay-creates-its-own-phosphorous
13. Delmarva Farmers (Jul, 2014). *Phosphorus: whoa not so fast.* http://www.lowereasternshorenews.com/2014/07/epa-proposes-taking-600000-acres-of.html
14. UD Research Office: UDaily News (May, 2012): *Pollution tracker: UD's Jaisi wins ORAU Powe Award to track down nutrient pollutant in Chesapeake* http://www.udel.edu/udaily/2012/may/jaisi-powe-award-050912.html

15. UD Research Office UDaily News (Feb, 2013). *Isotope fingerprints: Jaisi laboratory tracks chemicals in water, farmland throughout Mid-Atlantic.* http://www.udel.edu/udaily/2013/feb/tracking-phosphorus-022713.html
16. ORAU Annual Report (Nov, 2013). *Providing Seed Funding for Promising Junior Faculty Research*. Only one researcher highlighted among 30 awardees of ORAU award: https://www.orau.org/documents/about/annual-reports/2012-orau-annual-report.pdf
17. Delaware First Media (Jun 2012). *UD researcher seeks clues to curing annual Chesapeake Bay dead zone*. http://www.wdde.org/27307-ud-researcher-seeks-clues-curing-annual-chesapeake-bay-dead-zone
18. Inside Delaware (Nov, 2012). *Chesapeake Bay Conservation: Tracing Phosphorus Pollution* (one of six researchers highlighted by the university on its "*Progress and Plans to Advance UD*". This newsletter is a showcase of UD to 7,000 donors and prospective donors) http://www.udel.edu/giving/docs/Inside_DE_Issue5.pdf

I. SERVICE

1. University of Delaware

1.1. Co-Chair, Senate Graduate Studies Committee, University of Delaware, 2017–18
1.2. Founding member of the "*Biogeosciences*" graduate (MS and PhD) degree program, a new university-wide graduate program envisioned and being conceived with Donald Sparks (PLSC), Neil Sturchio (GEOL), Deb Jaisi (PLSC), and Angelia Seyfferth (PLSC), 2016-date.
1.3. Member, Senate Graduate Studies Committee, University of Delaware, 2016–18
1.4. Senator (CANR representative), Faculty Senate, University of Delaware, 2016–17
1.5. Member, Faculty Search Committee, Department of Plant and Soil Sciences, Civil and Environmental Engineering, Geological Sciences, 2015–18
1.6. Panel member, 'NSF CAREER Workshop" (one of the three UD faculty); organized by UD Research Office (April 20, 2017)
1.7. Panel member, "How do I document my Teaching for Promotion" (one of the three UD faculty) organized by Center for Teaching & Assessment of Learning (Feb 9, 2018)
1.8. Panel member, LEADelaware. Research Panel on Ag Science and Research, Leadership Change (one of three CANR faculty) (Feb 28, 2017)
1.9. Panel member, New Faculty Orientation (one of the three UD early career faculty selected by *Vice-Provost for Research and Scholarship*), Feb 18, 2015, and Nov 7, 2013

2. Departmental of Plant and Soil Sciences

2.1. Departmental committees

- Co-chair, Departmental Health and Safety Committee (with Nicole Donofrio 2011–2014, Amy Shober 2015–2016)
- Member, PLSC Promotion and Peer Review Committee (2012–2013, 2013–2014, 2017-19)
- Member, ad hoc committee on the Soils Program (2012–13)
- Member, ad hoc committee on Worrilow and related space (2012–13)
- Member, ad hoc committee on Departmental Seminars (2012)
- Member, ad hoc committee on Plant and Soil Sciences Symposium (2013)
- Member, search committee for Business Administrator, PLSC department (2013–14)

2.2. Advising and graduate student committees

2.2.1. Current primary dissertation/thesis advisor:

5 PhD and 4 MS students (Qiang Li, Gulcin Tosun, Jessica Anton, Spencer Moller, Taylor Moore, Megan Musser, Hamded Arfania, Fatemeh Izaditame, Hui Li)

2.2.2. Current dissertation committee member:

5 students: Mohammad Afsar (UD), Tyler Sowers (UD), Kathryn Szerlag (UD), Lanie Fuoko (Delaware State University), Fernanda Oliveira (University of Hawaii)

2.3. Student recruitment at UD

Discovery Days (2011, 14, 16), Delaware Decision Days (2013, 17), Blue and Golden Saturdays (2014,15)

3. Faculty affiliation

Joint appointment, Department of Geological Sciences (Feb, 2013 – date)

4. Services to the State of Delaware and the region

- Member, State-commissioned committee on 'Source tracking of bacteria and phosphorus' in DE state waters
- Meetings, presentations, and discussion, DE Nutrient Commission Board
- Frequent interaction, presentations, and discussions with farmers groups including Soybean Boards of Delaware and Maryland
- Guest lecturing in the community, state, commodity groups in Delaware and Maryland

5. Contributions to professional societies

- Associate Editor, Clays and Clay Minerals (CMS), 2014 – date
- Editorial Board Member of ACS journal on Earth and Space Chemistry, 2016 – date
- Editorial Board Member of Soil Methods, 2017 – date
- Nominated President-elect (American Chemical Society- Geochemistry Division), 2016
- Councilor, Clay Minerals Society, 2014–2017
- Chair, Student Awards Committee, Clay Minerals Society, 2014–2017
- Member, Student Awards Committee, Soil Science Society of America, 2014, 2015
- Society Director, American Society of Engineering (ASNEngr), 2016–2018
- Faculty Advisor, Nepalese Student Association, University of Delaware, 2016– date
- Chief Advisor, Nepalese Student Association, Tribhuvan University, Nepal, 2016– date
- Faculty Mentor, Goldschmidt Conference, 2015, 2016
- Faculty Mentor, ASA-CSA-SSSA Annual Meeting, 2015

6. Organizing and chairing sessions in professional society meetings (2011-2018)

6.1. *Approaching peak phosphorus and seeking alternatives: Linking reuse, speciation, and availability (*co-chaired with James Ippolito from Colorado State University*),* ASA-CSA-SSSA Annual Meeting. Tampa, FL (Oct 22–25, 2017).

6.2. *Soil enzymes: Methods of analyses and mechanisms (*co-chaired with Andrew Margenot from University of Illinois- Urbana Champaign and Sanjai Parikh from UC-Davis). ASA-CSA-SSSA Annual Meeting. Tampa, FL (Oct 22–25, 2017).

6.3. *New insights on nutrient sources and biogeochemical processes in surface waters as revealed by advanced techniques and in situ optical sensors* (co-chaired with John

Saraceno and James Shanley, USGS, and Gurpal Toor, U Florida), AGU Fall Meeting. San Francisco, CA (Dec 14–18, 2015).

6.4. *Tracking legacy phosphorus in lakes and rivers* (co-chaired with Satish Gupta and Carl Rosen, U Minnesota), ASA-CSA-SSSA Annual Meeting. Minneapolis, MN (Nov 15–18, 2015).

6.5. *Environmental fate of chemicals of emerging concern* (co-chaired with Robert Lerch, USDA-ARS and Gurpal Toor, U Florida), ASA-CSA-SSSA Annual Meeting. Minneapolis, MN (Nov 15–18, 2015)

6.6. *Interactions of clay minerals with microorganisms and biomolecules* (with Qiaoyun Huang, Huazhong Agricultural University, China), 51th Annual Meeting of the Clay Minerals Society. College Station, TX (May 18–21, 2014).

6.7. *Advanced molecular techniques characterizing soil biogeochemical processes* (co-chaired with Donald Sparks, UD and Xionghan Feng, Huazhong Agricultural University, China), ASA-CSA-SSSA Annual Meeting. Long Beach, CA (Nov 2–7, 2014).

7. Other professional activities

7.1. ***Peer-review of manuscripts*** in professional journals and book chapters (2011−2018) Review statistics: 7 in 2011, 11 in 2012; 14 in 2013; 17 in 2014; 15 in 2015, 11 in 2016 and 11 in 2017 in the following 39 journals:

African J Biotechnology, Applied Clay Sciences, Applied Geochemistry, Biogeoscience, Bioresource Technology, Chemical Geology, Clays and Clay Minerals, Chemical Geology, Chemosphere, Environmental Microbiology, Environmental Microbiology and Environmental Microbiology Reports, Environmental Monitoring, Environmental Science Processes and Impacts, Environmental Pollution, Environmental Studies and Sciences, Environmental Pollution, Environmental Science & Technology, Environmental Science & Technology - Letters, FEMS Microbiology, FEMS-Letters, Geochimica et Cosmochimica Acta, Geoscience J, Geoderma, J Soil Water and Conservation, Geomicrobiology J, J Alloys and Compounds, J American Chemical Society, J Environmental Quality, J Colloid and Interface Science, J Geophysical Research-Biogeosciences, J Soils and Sediments, Langmuir, Microbiology-Letters, Nanomedicine, PLOS One, Soil Biology and Biochemistry, Soil Science Society of America J, The Science of the Total Environment, Water Research, Water Resources Research.

7.2. ***Ad hoc review and panel members*** of federal research proposals (2011−2018)

National Science Foundation, Department of Agriculture, Department of Energy, US-Israel Binational Science Foundation, German Research Foundation (BGF), Canada Innovation Grant (CIG), Canada Discovery Grant (NRSEC), Belgium Research Foundation (FNRS)